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10/788,998	02/27/2004	Pantas Sutardja	MP0308	9194

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HARNESS, DICKEY & PIERCE P.L.C.
5445 CORPORATE DRIVE
SUITE 200
TROY, MI 48098

EXAMINER

CORRIELUS, JEAN B

ART UNIT	PAPER NUMBER
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2611

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/788,998	Applicant(s) SUTARDJA, PANTAS	
	Examiner Jean B. Corrielus	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-140 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-46 is/are allowed.
- 6) ☒ Claim(s) 47-49, 52, 53, 75-81, 84, 85, 104-108, 111, 112 and 132-140 is/are rejected.
- 7) ☒ Claim(s) 50, 51, 54-74, 82, 83, 86-103, 109, 110 and 113-131 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Examiner's Comment

2. Note that in view of the following new ground of rejection, the Quayle action has been vacated and prosecution is now reopened.

Allowable Subject Matter

3. The indicated allowability of claims 47-49, 52-53, 75-81, 84-85, 104-108, 111, 112, 132-140 is withdrawn in view of the newly discovered reference(s) to Behrens et al US patent No. 6,819,514 and Livingston US patent No. 6,513,141. Rejections based on the newly cited reference(s) follow.

Drawings

4. The drawings are objected to because claim 73 recites that the phase controller comprises the error generator and claim 74 recites that the gain controller comprises the error generator. However, the drawing shows that the error generator, the gain controller and the phase controller are independently provided. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if

only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. Applicant's response has overcome the outstanding claim objection.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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7. Claims 47-48, 75-76, 79-80, 106-107, 132-133, 136, 138 and 140 are rejected under 35 U.S.C. 102(e) as being anticipated by Behrens et al ('Behrens')US Patent No. 6,819,514.

As per claim 47, Behrens discloses a method and apparatus (fig. 3 fig. 6) comprising a VGA 22 responsive to an input signal 58 from the communication system (fig.3); an analog-to-digital converter (ADC) 24, wherein the ADC 24 is responsive to an output of the VGA 22; a first filter B103, wherein tap weight coefficients of the first filter are updated according to a first least mean square (LMS) engine see col. 20, line 59-60, wherein the first filter is responsive to an output of the ADC 24, and wherein at least one tap weight coefficient of the first filter B103 is constrained see col. 18, lines 28-29; a second filter B122/fig. 6, wherein the second filter B122/fig. 6 is responsive to an output of the first filter B103, and wherein a number of tap weight coefficients of the second filter B122/fig. 6, col. 12, line 22 comprises less than a number of the tap weight coefficients of the first filter B103 see col. 20, line 63; col. 21, lines 35-36; and, a gain controller 50 for controlling gain of the VGA 22, wherein the gain controller is in communication with the VGA 22 and responsive to the output of the second filter B122/fig.6, see output on line B102.

As per claim 48, Behrens further teaches that the tap weight coefficients of the second filter are updated according to an adaptation engine see col. 12, lines 39-40.

As per claim 75, Behrens teaches that the first and second filter include each a FIR filter see col. 11, line 12; col. 12, line 21, fig. 6 and fig. 8B.

As per claim 76, the system is included and a disk drive see col. 1, line 34.

As per claim 79, see claim 47.

As per claim 80, see claim 48.

As per claim 106, see claim 47.

As per claim 107, see claim 48.

As per claim 132, see claim 75.

As per claim 133, see claim 76.

As per claim 136, see claim 47.

As per claim 138, see claim 47.

As per claim 140, see claim 47.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 104 is rejected under 35 U.S.C. 103(a) as being unpatentable over Behrens in view of Livingston US patent No. 6,513,141.

As applied to claim 47 above Behrens teaches every feature of the claimed invention but fail to explicitly teach the following limitations of" f.) detecting an information sequence in the first filtered signal; g.) reconstructing an information signal from the detected information sequence; and h.) generating an error signal, wherein the error signal is associated with the reconstructed information signal". Livingston teaches the further limitations of" f.) detecting an information sequence in the first filtered signal 78

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see output of detector 88; g.) reconstructing an information signal 117 from the detected information sequence see output of remodulator 116; and h.) generating an error signal 120, wherein the error signal 120 is associated with the reconstructed information signal 117. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Behrens in order to provide the system with the enhance capability to detected and correct for signal error so as to preserve data integrity.

10. Claims 49, 52-53, 77-78, 81, 84-85, 105, 108, 111-112, 134-135 are rejected under 35 U.S.C. 103(a) as being unpatentable over Behrens.

As per claim 49, Behrens does not teach the further limitation of using a second LMS engine in the adaptation engine. However, it is well known in the art to use LMS engine to update filter coefficients. Given that fact, it would have been obvious to one skill in the art to incorporate a LMS engine in the adaptation module in order to advantage of its enhance technological feature such as real time adaptation processing.

As per claim 52, Behrens does not teach that a two tap filter is used in the second filter. However, implementing the filter with a two tap would have been obvious to one of ordinary skill in the art as it would have only required simple modification of the mathematics to derive such a coefficient so as to satisfy system requirements.

As per claim 53 representing the filter as "a" and "1+b" would have been obvious to one of ordinary skill in the art and the reasons would have been the same as provided with respect to claim 52.

As per claim 77, Behrens does not explicitly teach that the VGA, the ADC, the first filter the second filter and the gain controller are formed on a monolithic substrate. However,

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it is well known in the art to use a monolithic substrate to implement circuit components. Given that, it would have been obvious to one skill in the art to implement the VGA, the ADC, the first filter the second filter and the gain controller on a monolithic substrate because monolithic substrate provides easy implementation of circuit component.

As per claim 78 it would have been obvious to one skill in the art to design the system in such a way as to be compliant with the standard 802.11 so as to provide compatibility to existing devices that uses similar standard.

As per claim 81, see claim 49.

As per claim 84, see claim 52.

As per claim 85, see claim 53.

As per claim 105, see claim 78.

As per claim 108, see claim 49.

As per claim 111, see claim 52.

As per claim 112, see claim 53.

As per claim 134, see claim 77.

As per claim 135, see claim 78.

11. Claims 137 and 139 are rejected under 35 U.S.C. 103(a) as being unpatentable over Behrens in view of Patapoutian et al US patent No. 5,825,318.

As per claim 137, Behrens discloses a method and apparatus (fig. 3 fig. 6) comprising a VGA 22 responsive to an input signal 58 from the communication system (fig.3) ;an analog-to-digital converter (ADC) 24, wherein the ADC 24 is responsive to an output of the VGA 22; a first filter B103, wherein tap weight coefficients of the first filter are

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updated according to a first least mean square (LMS) engine see col. 20, line 59-60, wherein the first filter is responsive to an output of the ADC 24, and wherein at least one tap weight coefficient of the first filter B103 is constrained see col. 18, lines 28-29; a second filter B122/fig. 6, wherein the second filter B122/fig. 6 is responsive to an output of the first filter B103, and wherein a number of tap weight coefficients of the second filter B122/fig. 6, col. 12, line 22 comprises less than a number of the tap weight coefficients of the first filter B103 see col. 20, line 63; col. 21, lines 35-36. however, it fails to teach a timing phase controller for controlling timing phase of ADC, wherein the timing phase controller is in communication with the ADC and responsive to an output of the second filter. Patapoutian et al teaches a timing phase controller 94 for controlling timing phase of ADC 20, wherein the timing phase controller 94 is in communication with the ADC 20 and responsive to an output of the second filter 110. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Behrens so as to allow the data signal to be digitized synchronously so as to provide higher resolution for fine head position servo sampling during disk drive operations as taught by Patapoutian see col. 4, lines 49-53.

As per claim 139, see claim 137.

Allowable Subject Matter

12. Claims 1-46 are allowed.

13. Claims 50-51, 54-74, 82-83, 86-103, 109-110, and 113-131 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in

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independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments


14. Applicant's arguments filed 8/14/07 have been fully considered but they are not persuasive. It is alleged that claims 73 and 74 have been amended to overcome the outstanding claim objection. However, it is noted that the change made to claim 72 is insufficient to overcome the claim objection for the reasons specified in paragraph 5 above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Monday-Thursday from 9:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jean B. Corrielus
Primary Examiner
Art Unit 2611

1- 23-08